Day 1

Measuring the Circumference of a Bicycle Tire – Tanya Taylor

Shari Yesnick measures the diameter of a bicycle tire –

without the bias of the spokes!

Note the pen in mouth: position helps concentration and measurement. Mike Healy

That pesky micrometer! Hard to use, hard to read – but sure gives the most accurate and precise results! Bryna Selig and others

Diane and Jim McManus –
measuring the basketball circumference is a family affair.

Day 2

First trials of the newly made spectrometers using a natural light source – the sun.

Day 4

Dave and Eba try out the cars to produce visible tire patterns. Next job: make three measurements – in cm or mm! – related to the tire tracks.

“What’s happening there? Anything? Anything? Kids expect to see a color change, at least.” Shari looks for changes while Chris stirs.

Shari adds iodine solution to the known powders for use in comparison to the unknown while Chris G. observes.

And then it was on to smushing fruit to extract DNA – who knew fruit even had DNA? Hold on a minute, every living thing has DNA – cool! But that DNA sure looks gross!

Strawberries <u>do</u> have DNA – we've seen it!

"You really think that clear stringy stuff is the DNA? Looks just like snot to me!"

Day 5

Dave and Diane explore how traditional pH paper measures the pH of dilute solutions. (Watch Diane as she thinks this through – watch for the lightbulb.)

How come all three solutions look just the same when the pH paper is used?

What's going on here? I know one's an acid, one's a base, and one should be close to neutral!
Turns out that's what Ken saw, too – and he and Diane figured out what was happening! The acidic and basic solutions are so dilute that there's not enough H^+ or OH^- ions to actually cause a color change.
Diane (and Ken) you rock!

Measuring material to make cement, an activity led by Clarissa Feraris of the Building and Fire Research Laboratory (BFRL). Clarissa has worked on cement research for the past 26 years!

How will adding sugar, salt, baking soda, diet Coke (diet Coke!*?) affect how quickly the cement sets and its ensuing physical characteristics?

Jodi's done it – her cement is starting to set! And guess what, it's feeling kinda warm since it's undergoing an exothermic reaction!

Another success: cement setting up – looks like the Blizzard from Dairy Queen!

Trying out the electrophoresis kits. Yesterday we extracted DNA, today we'll separate it based on size and charge. Fortunately, Eba's an old hand at this and can guide the practice.

We end the day with Bill MacCrehan and the separation of ink using Thin Layer Chromatography (TLC) – now this is chromatography with a fluorescent twist!

Ellie and Carrie work together to extract ink from the million dollar check – it takes teamwork.

And then a switch from listening to work: we get to build our own props modeled on Dat's!

It takes teamwork to build bridge trusses.

Teamwork, epoxy, popsicle sticks, and pins.

While some teachers are building trusses others are building the reverse pendulum model.

And don’t forget to put wing nuts on the top of the tennis balls to prevent the kids from swiping them!